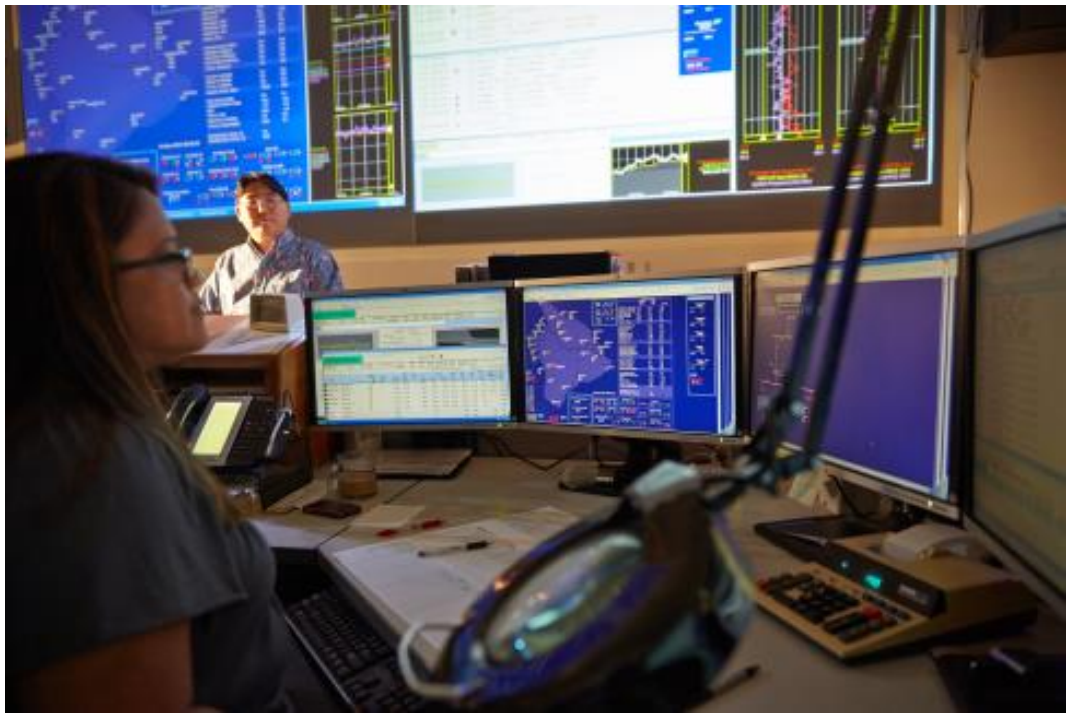
Hawaiian Electric
Maui Electric
Hawai‘i Electric Light

Fair and Sustainable Expansion of Solar Energy in Hawai`i

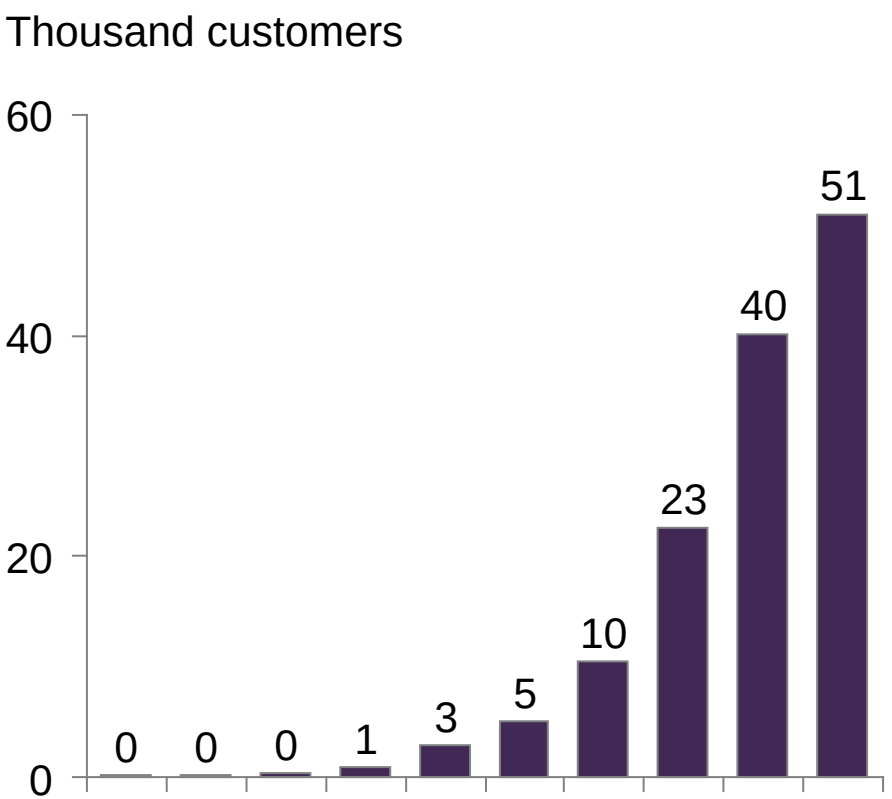
Informational Briefing - Hawai`i State Legislature, January 20, 2015



2014: Continued Leadership for Solar in Hawai`i

- Over 51,000 customers (12%) have rooftop solar
- Almost 11,000 approved in 2014 alone
- Nearly 400 MW of total capacity
- Valuable partnerships with NREL, SolarCity, and EPRI enabling continued growth

Cumulative Number of rooftop PV Installations
(Hawaiian Electric Companies)



Capacity (MW)	2	2	5	12	24	40	79	171	301	389

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Our Plan to Clear the Queue

- Applies to customers on high penetration circuits (>120% DML) in snapshot of NEM queue on 10/22/14
- Customers: 2,749 (O`ahu), 333 (Maui Electric), and 336 (Hawai`i Island)
- Based on preliminary results of NREL Study, committed to approving interconnection subject to:
  1. Use of ultra fast-trip inverters or self-certified ultra fast-trip performance
  2. Upgrade from interim to final ride-through settings at manufacturer or installer expense
  3. Any other applicable requirements in Rule 14H
- Schedule: approve majority (2,500) of these customers on O`ahu by April 2015

Through Collaboration, We Are Addressing Technical Issues

- High levels of uncontrolled, unscheduled, and variable solar energy create significant operational and reliability challenges
- Partnership with NREL, SolarCity, and EPRI to study circuit impacts
- Collaborating with industry on expanded ride-through settings and non-export/smart export pilots
- Working to resolve technical issues in parallel with expanding room for additional solar through a new, fair and sustainable program

We Propose a More Fair and Sustainable Solar Program

Goals

- Lower customer bills by 20%
- Triple the amount of distributed solar in a safe and reliable manner
- Provide customers with more options to help control energy costs
- Ensure fairness for all customers

Proposed actions

- Retain NEM for all existing customers, and transition to new Transitional Distributed Generation (TDG) program for new customers
- Take advantage of advanced technologies to protect the grid
- Continue to offer customers choices for PV, and develop new programs like community solar
- Raise interconnection threshold from 120% to 250% DML
- Launch non-export/smart-export pilots
- Partner with solar industry to prioritize circuits for upgrades
- Upgrade costs be treated as grid improvements benefiting all customers

Fairness Issues are Surfacing and Will Continue to Grow

Cost shift between NEM and Non-NEM customers:

- 2013 annualized cost shift = $38 Million
- 2014 annualized cost shift = $53 Million
- Growth in cost shift of $15 Million in one year shows potential for further increases as solar grows

Amount of cost shift is unfair and unsustainable for the ~88% (~406,000 customers) of Non-NEM customers (Tri-Company)

Under decoupling, we do not gain financially from modifying economics for solar; addressing economic issues is about *fairness to all customers*.

Continuing to Collaborate and Innovate Through Non-Export/Smart-Export Pilots

- Partner with multiple local and national storage vendors
- Build on work Companies pursuing with Energy Excelerator
- Multi-phased approach, targeting 1,000 customers
- High-level objectives:
  - Acquire concrete, real-world performance data and operating experience with distributed storage systems
  - Characterize and quantify benefits of these systems
  - Inform development of programs for widespread adoption

Summary of Plans for 2015

To Reach Our Goal of Tripling Distributed Solar by 2030 in a Safe and Reliable Manner, We Plan to…

Clear the Queue

- Address the backlog of NEM customers waiting approval as of 10/22/14

TDG

- Evolve to a new, fair and sustainable Transitional Distributed Generation Program
  - If approved, we will more than double the DML thresholds from 120% to 250%
  - Ask stakeholders to help prioritize circuit upgrades
  - Treat upgrade costs as grid improvements benefitting all customers

Non-Export/ Smart-Export

- Launch Non-Export/Smart-Export Pilots

New programs (e.g. commu-nity solar)

- Continue to build new programs for customers, like community solar

Regulatory Guidance

"[I]t is unrealistic to expect that the high growth in distributed solar PV capacity additions experienced in the 2010 - 2013 time period can be sustained, in the same technical, economic and policy manner in which it occurred, particularly when electric energy usage is declining, distribution circuit penetration levels are increasing, system level challenges are emerging and grid fixed costs are increasingly being shifted to non-solar PV customers." **(Order No. 32053 at 49)**

Mahalo